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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,864	07/14/2003	Koichiro Nakatani	115932	3812
25944	7590	01/26/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			TRAN, BINH Q	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/617,864	NAKATANI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

This office action is in response to the amendment filed November 10, 2004.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

***Claims 1-22 are rejected under 35 U.S.C. 102 (b) as being anticipated by Hepburn et al. (Hepburn) (Patent Number 5,974,788).***

Regarding claims 1, and 12, Hepburn discloses an exhaust emission control method and apparatus for treating exhaust gas emitted from an internal combustion engine (1), comprising the steps of locating an emission control device in an exhaust gas passage of the internal combustion engine, the emission control device (e.g. 32) storing SO<sub>x</sub> when an air/fuel ratio of exhaust gas flowing through the emission control device is lean, and releasing the stored SO<sub>x</sub> when a temperature of the emission control device is raised to a desulfurization temperature or higher and the air/fuel ratio of the exhaust gas flowing through the emission control device

becomes substantially equal to a stoichiometric air/fuel ratio or rich (e.g. See col. 5, lines 1-67; col. 6, lines 1-22); performing a temperature control process to control the temperature of the emission control device to be within a predetermined temperature range whose lower limit is substantially equal to or higher than a desulfurization temperature and to raise the temperature of the emission control device when the air/fuel ratio of exhaust gas is leaner than the stoichiometric air/fuel ratio (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22); and performing a desulfurization process to release sulfur from the emission control device by controlling the air/fuel ratio of the exhaust gas flowing through the emission control device to be substantially equal to the stoichiometric air/fuel ratio or rich when the temperature of the emission control device is within the predetermined temperature range, wherein the temperature control process and the desulfurization process are repeated when sulfur is to be released from the emission control device (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 2, and 13, Hepburn further discloses that in the temperature control process, the temperature of the emission control device is raised or lowered by controlling the air/fuel ratio of the exhaust gas flowing through the emission control device (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 3, and 14, Hepburn further discloses that wherein an amount of the exhaust gas flowing through the emission control device is larger in the temperature control process than that in the desulfurization process (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 4, and 15, Hepburn further discloses that wherein the temperature control process and the desulfurization process are repeated until release of sulfur from the emission control device is finished (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 5, and 16, Hepburn further discloses that wherein the temperature control process and the desulfurization process are repeated until a total time of execution of the desulfurization process reaches a set value (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 6, and 17, Hepburn further discloses that wherein the temperature control process and the desulfurization process are repeated a predetermined number of times (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 7, and 18, Hepburn further discloses that wherein the temperature control process continues for a first predetermined period of time and the desulfurization process continues for a second predetermined period of time (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 8, and 19, Hepburn further discloses that wherein at least one of the first predetermined period of time and the second predetermined period of time is determined depending upon an operating state of the internal combustion engine (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 9, and 20, Hepburn further discloses that wherein the first predetermined period of time for the temperature control process is corrected according to a rate of increase or decrease of the temperature of the emission control device, and the second predetermined period of time for the desulfurization process is corrected according to a speed of release of sulfur from the emission control device (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 10, and 21, Hepburn further discloses that wherein the air/fuel ratio of the exhaust gas flowing through the emission control device is controlled in the temperature control process according to a rate of increase or decrease of the temperature of the emission control device, and the air/fuel ratio of the exhaust gas flowing through the emission control device is controlled in the desulfurization process according to a speed of release of sulfur from the emission control device (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

Regarding claims 11, and 22, Hepburn further discloses that wherein the emission control device comprises a NO<sub>x</sub> storage agent that stores NO<sub>x</sub> when the air/fuel ratio of the exhaust gas flowing through the NO<sub>x</sub> storage agent is lean, and releases the stored NO<sub>x</sub> for reduction and removal when the air/fuel ratio of the exhaust gas flowing through the NO<sub>x</sub> storage agent is reduced and a reductant is present in the exhaust gas (e.g. See Table 1; col. 5, lines 1-67; col. 6, lines 1-22).

### ***Response to Arguments***

Applicant's arguments filed November 10, 2003 have been fully considered but they are not completely persuasive. Claims 1-22 are pending.

Applicant's cooperation in correcting the informalities in the specification is appreciated. Applicant's cooperation in explaining the claims subject matter more specific to overcome the rejection is also appreciated.

Applicants' s arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection as discussed above.

Applicant's amendment (Claims 1-22) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of three patents:

Boegner et al. (Patent Number 6161377), Waschatz et al. (Patent Number 6823657), Okada et al. (Patent Number 6644021) discloses an exhaust gas purification for use with an internal combustion engine.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT  
January 21, 2005



Binh Q. Tran  
Patent Examiner  
Art Unit 3748